

Amendments to the Specification:

Please replace paragraph [0059] with the following amended paragraph:

[0059] Simultaneously while performing Acts 603 and 604 for the read stage, pipeline processing engine 400 also implements the compute stage. In the compute stage, evaluation components 431-434 generate a logic one or logic zero based on the portion of the packet received from packet header buffer 450 and on the operation specified in the IOP field 502 (Act 605). Based on the results of evaluation components 431-434, priority encoder 435 controls multiplexer 436 to forward the selected one of instructions i_0-i_3 to execution unit 440 (Act 606). Execution unit 440 performs the operations specified by the selected instructions in IOP field 502 and IFlags field 505 (Act [[606]] 607). As shown in Tables I and II, these operations may include a write instruction, an extract instruction, a program counter jump instruction, a byte shift instruction, or a number of other instructions related to packet processing.